Remarks

The specification has been amended in several places to use American English spellings and make several other corrections.

Respectfully submitted,

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Date: Nov. 26, 2002

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

The following priority benefit paragraph has been inserted on page 1 between the Title and the first line:

This application has priority benefit of European Patent Application No. 99811204.9, filed on December 23, 1999.

The original paragraph on page 1, lines 10 to 25, has been replaced with the following rewritten version on page 1, lines 10 to 25, as amended:

For packing animal feed, containers in the form of cans or dishes with a peel-off lid sealed to the container edge are known. The [aluminium] aluminum foil used as a packing material is coated with PP on the container inside for sealing and [sterilising] sterilizing purposes. Such containers of the PP-coated [aluminium] aluminum foil used for their production are known under the trademark STERALCON ®. Previously PP-coated [aluminium] aluminum foil was produced by way of solvent-based lacquer lamination with a PP Castfilm. Here a solvent-based adhesive, for example a polyurethane adhesive, is dried in a through-oven by evaporation of the solvent and the [aluminium] aluminum foil coated with adhesive is then laminated with the PP Castfilm between two rollers into coated [aluminium] aluminum foil. The laminate adhesive used as an adhesion-promotion agent develops adequate adhesion in a relatively short time which leads to a seal seam strength to DIN 53539 of more than 5 N/15 mm.

The original paragraph on page 1, line 27, to page 2, line 7, has been replaced with the following rewritten version of the paragraph on page 1, line 27, to page 2, line 7, as amended:

The production of PP-coated [aluminium] aluminum foil by lacquer lamination of the foil with a PP Castfilm is relatively expensive. Therefore attempts have been made to replace the lacquer lamination with a PP Castfilm by a co-extrusion coating with PP. In current co-extrusion coating technology, however, subsequent heat treatment is required to achieve adequate adhesion. This leads to [after-crystallisation] after-crysytallization of the PP layer which causes increased adhesion of the moist or wet filling. Consequently, the serving properties deteriorate, i.e., the animal feed present in the form of a cohesive block can no longer be removed from the container by simple reversal of the container and light pressure with the thumbs on the base without additional aids. Similarly, for the same reason the moist or wet filling adheres or sticks to the lid. However, precisely this ease of serving and clean separation of the animal feed from the lid on the opening container is expected by the customer intending to present his cat or dog with feed in the form of a solid block.

The original paragraph on page 2, lines 9 to 17 has been replaced with the following rewritten version of the paragraph on page 2, lines 9 to 17, as amended:

As well as the negative effect on the serving properties and adhesion, the higher crystallinity of the PP layer caused by the retempering leads, on forming

of the coated [aluminium] aluminum foil into containers, to so-called white break in the polymer which substantially reduces the resistance of the inside of the container to aggressive filling. The reduced resistance can lead to separation of the coating and hence corrosion of the metal below, where even a merely visual deterioration is not acceptable to the customer.

The original paragraph on page 2, lines 19 to 21, has been replaced with the following rewritten version of the paragraph on page 2 lines 19 to 21, as amended:

The problems do not arise in lacquer-laminated [aluminium] aluminum foil because of the largely amorphous surface structure of the PP Castfilm.

The original paragraph on page 2, lines 23 to 31, has been replaced with the following rewritten version of the paragraph on page 2, lines 23 to 31, as amended:

The present invention is therefore based on the task of creating a process of the type described initially which is cheaper than lacquer laminating with a PP Castfilm, where the coated [aluminium] aluminum foil produced with the process according to the invention, or containers and lids made from this for animal feed, have equally good properties with regard to the ease of serving, adhesion, and resistance to aggressive fillings as the lacquer-laminated foils according to the state of the art.

The original paragraph on page 2, line 33, to page 3, line 8, has been replaced with the following rewritten version of the paragraph on page 2, line 33, to page 3, line 8, as amended:

The task according to the invention is solved in that the plastic is co-extruded with an adhesion-promoting agent and combined with an [aluminium] aluminum foil between two rollers, the foil coextrusion-coated in this way, to increase the adhesion strength between the [aluminium] aluminum foil and plastic coating, then passes continuously through an oven with temperature set so that the temperature at the surface of the plastic coating lies above the crystallite melt point of the plastic and the coated [aluminium] aluminum foil heat-treated in this way, after emerging from the oven, is cooled in a shock-like manner such that the crystalline proportion at least in the surface area of the cooled plastic coating and the crystallites or spherulites in this area are as small as possible.

The original paragraph on page 3, line 17, to page 4, line 11, has been replaced with the following rewritten version of the paragraph on page 3, line 17, to page 4, line 11, as amended:

The phrase "plastics based on propylene (PP) or polyethylene (PE)" here refers to both pure polymers which are normally known as PP-homo or PE-homo, and modified polymers with a majority of PP or PE. The term "modified polymers" for example includes the copolymers or terpolymers known as "random" with for example ethylene as a further monomer part, and the

copolymers or terpolymers known as "block" or PP blends with other plastics, in particular polyethylene or fillers. Other examples are density-modified polyethylenes, such as LDPE and HDPE. Generally, the polyethylenes have a [behaviour] behavior comparable to polypropylene with regard to crystallinity. The key value which is decisive for the [after-crystallisation] after-crystallization of the PP and PE layers is the crystallite melt point of the polymer which defines the transition of a thermoplast from its viscous molten state into the solid state characterised by [crystallisation] crystallization. The crystallite melt point for PP is around 160 °C, for PE between 100 °C and 140 °C depending on density. The term "shock-like cooling" expresses the fact that the temperature range adjacent to the crystallite melt point is passed so quickly that firstly a substantial part of the surface area of the plastic layer remains in an amorphous state and secondly the cooling is so severe that the crystallites or spherulites [crystallising] crystallizing out in a smaller amount are as fine as possible. The structure forming on the surface of crystallites, leads to an effective suppression of the adhesion of animal feed described above, which gives better serving properties and reduced adhesion of the packaging container and lid made from the coated foil. The extremely small size of the crystallites and the high proportion of amorphous material essentially prevent the formation of white breaks even in the deformation area.

The original paragraph on page 5, lines 24 to 27, has been replaced with the following rewritten version of the paragraph on page 5, lines 24 to 27, as amended;

The coated [aluminium] aluminum foil can also be sprayed with the liquid coolant, preferably water. Finally, in certain cases, it may be sufficient to cool the coated [aluminium] aluminum foil rapidly by means of a, preferably cooled, gas.

The original paragraph on page 5, lines 29 to 31, has been replaced with the following rewritten version of the paragraph on page 5, lines 29 to 31, as amended:

As already stated the process or the [aluminium] aluminum foil coated as made in the process, is preferably used for production of packaging for moist animal feed.

The original paragraph on page 5, line 33, to page 6, line 2, has been replaced with the following rewritten version of the paragraph on page 5, line 33, to page 6, line 2, as amended:

Preferred packages made from plastic-coated [aluminium] aluminum foil include in particular semi-rigid containers made by forming the coated [aluminium] aluminum foil, in particular a can or dish. These suitably have a closure in the form of a lid sealed onto the edge area of the container, which is preferably also made of the coated [aluminium] aluminum foil produced

according the invention. As stated above these packages are suitable for most animal feed.

The original paragraph on page 6, lines 4 to 10, has been replaced with the following rewritten version of the paragraph on page 6, lines 4 to 10, as amended:

Further advantages, features and details of the invention arise from the description below of preferred embodiments, and the drawings which show diagramatically:

- Fig 1 shows the production of a coated [aluminium] aluminum foil;
- Fig. 2 is a cross section through a dish-like container for animal feed with partly removed lid.

The original paragraph on page 6, line 12, to page 7, line 2, has been replaced with the following rewritten version of the paragraph on page 6, line 12, to page 7, line 2, as amended:

The arrangement shown in Fig. 1 shows the essential process steps for producing a coated [aluminium] aluminum foil 10. A [co-extrusion] coextrusion layer emerging from the nozzle 12 of a [co-extrusion] coextrusion plant, not shown in the drawing, consists of a first plastic part 14 of for example polypropylene (PP) and a second plastic part 16 of an adhesion-promoting agent e.g. maleic acid-modified PP, and is combined in the gap of a roller pair 20, 22 with an [aluminium] aluminum foil 24 supplied by way of one of the two rollers 20. The coated [aluminium] aluminum foil 10 formed in this way, which still does not

have sufficient adhesion to form a seal seam, after emerging from the roller gap passes through an oven 26 with an internal temperature T_O of for example 250 °C. After emerging from the oven 26 the coated [aluminium] aluminum foil 10 is passed through a coolant 30, for example ice-cooled water, over deflector rollers 32, 34, 36 arranged in a coolant container 28. The temperature T_S of the coated [aluminium] aluminum foil 26 shortly before entering the coolant 30, i.e., the start temperature of the shock-like coolant, corresponds practically to the oven outlet temperature of for example 230 °C. When the shock-cooled coated [aluminium] aluminum foil 10 leaves the coolant 30 the temperature T_E, i.e., the end temperature of the shock-like cooling, is for example 70 °C. The coated [aluminium] aluminum foil 10 produced in this way is then, before further processing, e.g., lacquering and/or printing of the outside and shaping of containers, wound into a coil not shown in the drawing. The external lacquering and/or printing can in principle be carried out before coating of the inside.

The original paragraph on page 7, lines 4 to 10, has been replaced with the following rewritten version of the paragraph on page 7, lines 4 to 10, as amended:

A packaging 40 shown in Fig. 2 for animal feed 42 consists of a dish-like container 44 with a base part 46 and a wall part 48 projecting from this, the upper edge 50 of which forms a peripheral sealing surface. On this upper edge is sealed a lid 52, partly removed in the figure, made of a coated [aluminium] aluminum foil 10. The base plastic of the cover material consists for example of

PP and is also modified so that the lid 52 can easily be removed from the container edge 50 by peeling.